HERPETOLOGIA

A REVIEW OF THE COLOMBIAN SNAKES OF THE FAMILIES TYPHLOPIDAE AND LEPTOTYPHLOPIDAE

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This review was made at the suggestion of my old friend and correspondent Hermano Nicéforo María, and most of the some 50 Colombian specimens examined are under his care in the Instituto La Salle, Bogotá.

Family TYPHLOPIDAE

Genus **Anomalepis**

No specimens of this genus are yet known from Colombia, but as it occurs in Panamá and in Peru, it is to be expected. The Panamian species, *A. mexicanus,* has 22 scale rows, and a longitudinal scale count of 267-272; the Peruvian *A. aspinosus* has 24-26 scale rows and a longitudinal count of 320-343.

Genus **Helminthophis**

Of the three species of this genus one occurs in Colombia, one in Venezuela, and one in the mountains of western Panamá and Costa Rica. The Colombian form has 20 scale rows, the Venezuelan *flavoterminatus* has 24, and the Costa Rican *frontalis* has 22.

Helminthophis praeocularis Amaral.

Helminthophis praeocularis Amaral, 1924, Proc. New England Zool. Club. 9, p. 28.

TYPE: Harvard Mus. Comp. Zool. 17960.

TYPE LOCALITY: Honda, in the upper Magdalena valley.

RANGE AND MATERIAL: Cúcuta (215 m., N. de Santander); San Gil (1095 m., Santander); Honda (229 m., Tolima), three; Ibagué (1250 m., Tolima).

REMARKS: Uniform dark with the head and nape light (?red in life), and some light at or near tip of tail; length to 214 mm.; length diameter ratio 46-52; four upper labials; ocular in contact with the third labial; prefrontals meeting in middorsal line between rostral and frontal (generic character); a superocular between ocular and frontal; a single preocular which forms the hind border of the prefrontal between frontal and upper nasal; Honda specimens with smooth head scales; frontal with a row of tubercles in specimens from San Gil and Ibagué; all upper head scales with tubercles in the Cúcuta specimen; two enlarged preanal scales.

Genus **Liotyphlops**

Twelve specimen of this genus represent four well defined species. Three of these have more than 22 scale rows. Amaral, in his review of this group (1924, Proc. New England Zool. Club, 9, pp. 25-30), mentions only the Colombian species *anops* as having more than 22 scale rows, and thus two of these species are new.

The Colombian forms may be differentiated as follows:

A. Frontal about as wide as rostral; three scales in contact with prefrontal between frontal and upper nasal; 24-28 scale rows.
  B. 26-28 scale rows; inmaculate light below; dorsal scales with dark centers; eye invisible in adult ..... **anops**
  BB. 24 scale rows; uniform dark above and below ..... **metae**
AA. Frontal considerably wider than rostral; two scales in contact with prefrontal between frontal and upper nasal; 22-24 scale rows.
  B. 24 scale rows; scales light with a dark dot at base; L/D ratio 41 ....**cucutae**
  BB. 22 scale rows; scales uniform dark; L/D ratio 65 ..... **albirostris**

Liotyphlops anops (Cope)

Helminthophis anops Cope, 1899, Philadelphia Mus., Sci. Bull. 1, p. 10, pl. 4, f. 1.

TYPES: Two specimens sent by the Colombian Government to the Chicago Exposition of 1898. Specimens no longer extant.

TYPE LOCALITY: "near Bogotá".

RANGE: Known from San Vicente de Chucurí (692 m., Santander) and Paime (1038 m., Cundinamarca).

REMARKS: The types were said to have 26 scale rows; the San Vicente one has 26, and the Paime one 28. The scales of the back and

sides (17 rows) have dark centers; the scales of the belly (9 or 11 rows) are immaculate. The types were said to have three labials, but the figure shows a small fourth which I find in the two specimens at hand.

The second labial is in contact with the nasal; the eye is invisible in the types (the larger specimen 372 mm.) and in the Paime specimen (260 mm.), and visible in the San Vicente specimen (150 mm.). A supraocular prevents contact of the preocular and the frontal; a subocular prevents contact of the ocular with the third labial; there is an enlarged postfrontal, and two enlarged preanal scales. The length/diameter ratio of the Paime specimen is 43; of the San Vicente 37.

Liotyphlops metae, sp. nov.

TYPE LOCALITY: Villavicencio, Meta, 498 meters.

TYPE: A 300 mm. specimen (No. 8) in the Instituto La Salle.

MATERIAL: Three specimens from Villavicencio.

DESCRIPTION: Relatively uniform dark (the tips of the scales darkest) above and below; head light; eye visible; head scalation that of *anops* (q. v.). enlarged postfrontal present in two specimens, absent in the other; a single enlarged preanal. Length/diameter ratio 50.

Liotyphlops cucutae sp. nov.

TYPE LOCALITY: Cúcuta, Norte de Santander, 215 meters.

TYPE: A 163 mm. specimen in the Instituto La Salle.

DESCRIPTION: Twenty-four scale rows; each scale white with an anterior dark spot; tail darker, tip white; snout white; eye plainly visible; four upper labials, fourth not as high as third; no enlarged postfrontal; ocular in contact with third labial, not in contact with frontal; two preoculars, upper in contact with frontal, lower in contact with upper nasal; two enlarged preanal scales; length 163 mm., tail 5 mm., diameter 4 mm. Length/diameter ratio 41.

REMARKS: This is the specimen which I reported (1937, Proc. Biol. Soc. Washington 50, p. 11) as *anops,* a species which I had not seen at the time, and whose description I thought might have been inaccurate.

Having now seen two specimens of true *anops* I correct my error. *L. cucutae* is not even very close to *anops,* but is rather related to *albirostris,* as shown in the key. Points in which my present description

differs from that given in 1937 have been repeatedly checked by microscopical examination.

Liotyphlops albirostris (Peters).

Rhinotyphlops albirostris Peters. 1857, Mon. Ak. Berlin, p. 402.
Typhlops (Idiotyphlops) emunctus Garman, 1883, Mem. Mus. Comp. Zool. 8, 3, p. 3, Panamá.
Helminthophis canellei Moquard, 1903, Bull. Mus. Hist. Nat. 9, p. 212, Panamá.
Helminthophis bondensis Griffin, 1915, Mem. Carnegie Mus. 7, p. 165, Bonda, Colombia.

TYPES: I have examined the types of these names except for *bondensis*.

TYPE LOCALITY: Veragua, Panamá.

RANGE: Costa Rica to Colombia. In Colombia lowlands of Santa Marta - Barranquilla - Cartagena area and up the Magdalena as far as Mariquita.

MATERIAL: Six specimens: Mariquita, three; Cartagena, one; Barranquilla, two.

REMARKS: On the basis of 16 Central American specimens I redescribed this species in 1932 (Proc. Biol. Soc. Washington 45, pp. 173-176). I have since seen a number of additional Panamanian specimens and the six Colombian ones listed above. Besides the differences from the Cúcuta species given in the key, *albirostris* has the fourth labial as high as the third. The snout alone is light in the Central American specimens, except for the type of *canellei* which has the whole head white. The whole head is white in four of the six Colombian specimens, two from Mariquita having only the snout light. Twelve of the sixteen Central American snakes had a large postfrontal, which is replaced by three small scales in the other four and also in the six Colombian ones I have seen.

The big postfrontal was, however, present in the type material of *bondensis*.

The narrow ocular contact with the third labial, present in all but one of the Central American specimens, and in the type material of *bondensis*, is absent in the Cartagena specimen, one of the Barranquilla specimens, and two Mariquita specimens.

The Cartagena specimen measures 260 mm., tail 4, diameter 4, length/diameter ratio 65. A Mariquita specimen measures only 75 mm., and is the smallest snake I have ever seen.

Genus **Typhlops.**

Typhlops reticulatus (Linné).

Anguis reticulatus Linné, 1758, Syst. Nat. (10), p. 228.

TYPE LOCALITY: America.

RANGE: Northern South America, east of the Andes.

COLOMBIA: Arauca, Villavicencio, Acacías, Caucaya. I have seen five from Villavicencio, and one from Caucaya. A specimen without data measures 333 mm., tail 11, diameter 13, length/diameter ratio 26. This species has 20 scale rows, black or brown above (9 rows), white below (11 rows). As it has four supralabials, a single preocular, and two postoculars, and a longitudinal scale count of about 265 (Caucaya specimen), *reticulatus* seems fairly close to *lumbricalis* of the Antilles.

Family LEPTOTYPHLOPIDAE.

Genus **Leptotyphlops.**

Examination of 29 Colombian specimens of *Leptotyphlops,* all but three in the collection of the Instituto La Salle, indicates the presence in the country of four species, one of which is undescribed.

The four species agree in having 14 rows of dorsal scales; naso-labial in wide contact with oculo-labial; a supraocular between frontal and oculo-labial; two postfrontals, each between a pair of large parietals. They differ as follows:

A. Five upper labials, two between naso-labial and oculo-labial.
  B. Belly slightly lighter than dorsum; postfrontals longer than wide; 236 scales from rostral to tail tip; length/diameter ratio 45 .... **macrolepis**
  BB. Belly without pigment; postfrontal scales wider than long; less than 200 scales from rostral to tail tip; 1/d ratio 33-36.
    C. Above black, including 7 scale rows and two half scale rows; uplands of Antioquia and Caldas. .... **joshuai**
    CC. Seven dorsal scale rows with light sides and dark brown centers; Barranquilla .... **dugandi**
AA. Four upper labials, one between naso-labial and oculo-labial; dark, dorsal scales with light edges; rostral and tail spine white; 1/d ratio 62 .. **goudotii**

Leptotyphlops macrolepis (Peters).

Stenostoma macrolepis Peters, 1857, Mon. Ak. Berlin, p. 402.

TYPE LOCALITY: Caracas and Puerto Cabello, Venezuela.

RANGE: Panamá to Brazil.

COLOMBIA: Twelve specimens from the following localities:

Norte de Santander: Ocaña (1200 m.), two.

Santander: Barichara (1336 m.), three; San Gil (1095 m.), four.

Tolima: Mariquita (535 m.); Guamo (402 m.); Chaparral (800 m.), two.

REMARKS: I took the Mariquita specimen at night, as it was climbing two feet above the ground on the vertical concrete wall of a building. This specimen appears to be a female (with scent glands extending almost to tail tip). It has 236 dorsals, 21 caudals, length 225 mm., tail 16 m., diameter 5 mm., length/diameter ratio 45, length/tail-length ratio 14. I regard this species as probably *L. macrolepis* of Peters, although I have not been able to examine the type in Berlin.

The color of *macrolepis* is said to have been *"supra fuscoviolaceum subtus sordide album, maculis fuscoviolaceis"*, thus pigmented with the same color above and below, but below with the pigment in spots separated from each other by "dirty white". This agrees better with the present form than with what I here call *dugandi*. Dr. Dugand and Dr. Richter, who kindly compared specimens of the two species with each other and with the original description, came to the same conclusion.

The length/tail-length ratio of *macrolepis* as given by Peters (280/18) is 15.5, and thus closer to the ratio of 14 of the specimen above than to the ratio for male *dugandi* (18.3), or female *dugandi* (29).

Leptotyphlops dugandi, sp. nov.

TYPE: A male specimen in the Colegio Biffi, Barranquilla.

TYPE LOCALITY: Juanmina, 20 m. alt., about 11 km. S. W. of Barranquilla (Departamento del Atlántico).

DESCRIPTION: The type, a male with partially everted hemipenis, has 172 dorsals, 12 caudals, length 165 mm., tail 9 mm., diameter 5 mm., l/d 33, l/t 18.3. The light sides of the dorsal scales are somewhat pigmented so that the striping is obscured.

A female from Barranquilla (collected in the gardens of the Colegio Biffi) has 184 dorsals, 10 caudals, length 145 mm., tail 5 mm., diameter 4 mm., l/d 36, l/t 29. The light sides of the dorsal scales are almost unpigmented so that the snake is vividly striped. In both specimens the rostral and nasals are white.

Both specimens are in the collection of the Colegio Biffi in Barranquilla, and were very kindly sent by Hmno. Hildeberto to Dr. Dugand for my examination.

Leptotyphlops joshuai sp. nov.

TYPE: Instituto La Salle, large (270 mm.) specimen from Jericó.

TYPE LOCALITY: Jericó, Antioquia (1967 m.).

RANGE: Central and Western Andes in Antioquia and Caldas.

MATERIAL: Seven specimens; four from Jericó, one from Andes (1357 m.), one from "R. Cauca, Antioquia", one from Villamaría (2005 m.). Jericó and Andes are west of the Cauca in Antioquia; Villamaría is east of the Cauca in Caldas.

REMARKS: The type has 191 dorsals; total length 270 mm., tail 18, diameter 8: seven dorsal rows are black, a lateral row is half black and half white, five ventral rows are white.

Leptotyphlops goudotii (Duméril and Bibron).

Stenostoma goudotii Duméril and Bibron, 1844, Erp. Gén. 6. p. 330.

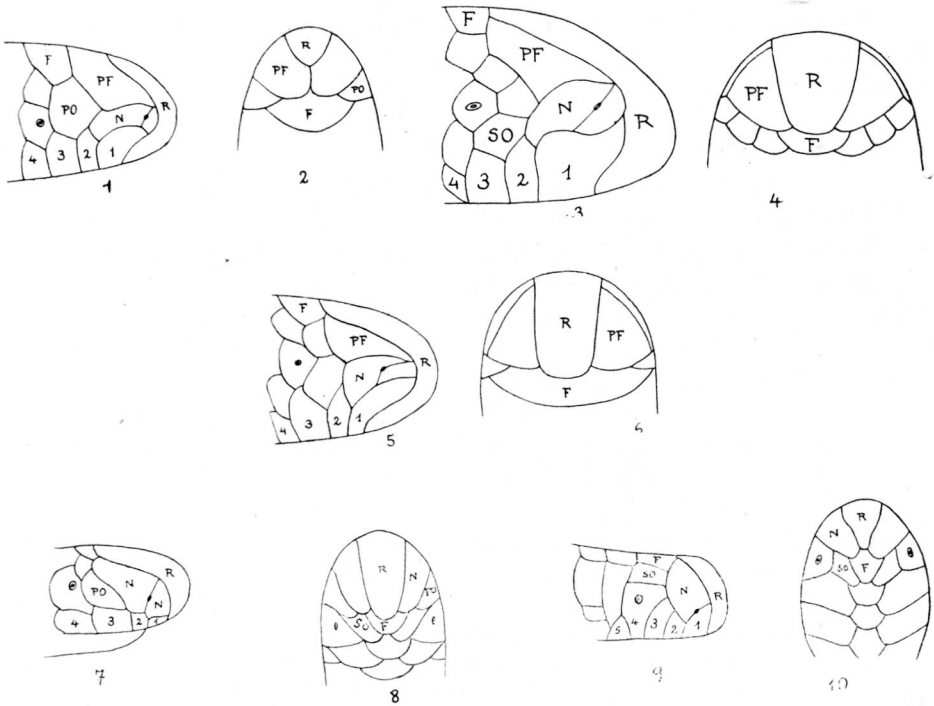
TYPE LOCALITY: Magdalena River.

RANGE: Magdalena valley in Santander, Tolima, and Cundinamarca.

MATERIAL: Seven specimens: one from Rio Negro, Bucaramanga, Santander (1018 m.); three from Honda, Tolima (229 m.); one from "Tolima", one from Ambalema, Tolima (289 m.); one from near Apulo, Cundinamarca (app. 700 m.).

REMARKS: The Bucaramanga specimen, which lacks the epidermis, has all the scales light-edged, but with wider light edges on the three middorsal rows. In the other specimens the light edges are apparent only on the three middorsal rows. This specimen also is the largest, measuring 125 mm., tail 7, diameter 2. It had 231 dorsals. The next largest, from Honda, had 217 dorsals.

This seems to be the Colombian representative of the wide ranging *albifrons* group. The nearest relative to the north is in western Nicaragua and northwestern Costa Rica.



1-2.—*Helminthophis praeocularis*, Side (1) and top (2) of head.
3-4.—*Liotyphlops metae*, Side (3) and top (4) of head.
5-6.—*Liotyphlops cucutae*, Side (5) and top (6) of head.
7-8.—*Typhlops reticulatus*, Side (7) and top (8) of head.
9-10.—*Leptotyphlops joshuai*, Side (9) and top (10) of head.

F = Frontal
PF = Prefrontal
N = Nasal
PO = Preocular
R = Rostral
SO = Subocular
1, 2, 3, 4 = Upper labials.

These figures are somewhat diagrammatic, and are intented for purposes of representing the differences between the genera and species groups.

The accompanying figures will show the marked differences in head scalation between Typhlopid and Leptotyphlopid snakes, which are accompanied by profound differences in the structure of the skeleton of the jaws. They will also show the differences between the three Colombian genera of Typhlopidae, which may be verbally expressed as stages in the increase in size and reduction in number of the anterior scales of the head.

Anomalepis (not yet recorded from Colombia) has polygonal prefrontals which meet behind the rostral, and a pentagonal frontal like that of normal snakes.

Helminthophis has these scales in the same position, but they are semicircular like the body scales.

In *Liotyphlops* the rostral is enlarged and meets the frontal, eliminating the contact between the prefrontals.

In *Typhlops* the frontal is almost indistinguishable from the body scales, and the upper nasal has fused with the prefrontal.